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CERTIFICATE OF TAPPlicant(s): Thomas D.	TRANSMISSION BY FACSI Stelger	MILE (37 CFR 1.8)	Docket No. 2003-0129-01
Palent Application No. 7,006,547	l saue Filing Date February 28, 2006	Examiner T. Nguyen	Group Art Unit 2828
Invention: VERY HIGH REPETI	ITION RATE NARROW BAND G	AS DISCHARGE LASER SYS	ТЕМ
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Atty. Docket No. 2003-0129-01 APR 0 7 2006

USPN 7,006,547

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Signature)

## IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent No:

7,006,547

Issue Date:

Feb. 28, 2006

Appln. Serial No.:

10/815,386

Filing Date:

March 31, 2004

Title: VERY HIGH REPETITION RATE

NARROW BAND GAS DISCHARGE

LASER SYSTEM

Certificate of Corrections Branch Commissioner for Patents P.O. Box 1450

Examiner: Dung T. Nguyen

Group Art Unit: 2828

Conf. No.: 7573

Alexandria, VA 22313-1450

## REQUEST FOR CERTIFICATE OF CORRECTION UNDER 37 CFR § 1.322

Dear Sir:

Applicants respectfully request the United States Patent Office to correct the above-identified patent to correct grammatical and typographical errors in the claims that are the Patent Office's fault. Such corrections do not add new matter.

Applicants request correction of the U.S. patent as follows:

Atty. Docket No. 2003-0129-01 USPN 7,006,547

To:USPTO

On the face of the Patent, under (75) Inventors: please delete ", Edward P. Holtaway, Carlsbad, CA (US), Bryan Moosman, San Marcos, CA (US), Rajasekhar M. Rao, San Diego, CA (US)".

Atty. Docker No. 2003-0129-01 USPN 7,006,547

#### Remarks

Applicant respectfully requests correction of inventorship as described above under 37 CFR § 1.322. During prosecution of the above-caption patent, Applicant submitted to the USPTO documentation which satisfied all requirements for a correction of inventionship under 37 CFR 1.48(b), namely, a request, signed by a party set forth in 37 CFR § 1.33(b), to correct the inventorship that identifies the named inventor or inventors being deleted and acknowledges that the inventor's invention is no longer being claimed in the nonprovisional application; and the processing fee set forth in 37 CFR § 1.17(i). Note, the current law no longer requires a petition and petition fee, but instead, now requires a signed request and a processing fee. Such a request (properly signed by a party set forth in 37 CFR § 1.33(b)) and processing fee were completed in a paper sent to the patent office dated July 21, 2005, a copy of which is attached herewith. Also, the processing fee was charged to the Applicants deposit account, see statement attached herewith. Moreover, applicant received no correspondence from the Patent Office indicating that the papers submitted we inadequate or incorrect.

Accordingly, Applicant respectfully requests correction of inventorship as described above under 37 CFR § 1.322.

Atty, Docket No. 2003-0129-01 USPN 7,006,547

#### Conclusion

Enclosed is FORM PTO-1050 requesting correction of the above-referenced U.S. Patent. This is a Certificate of Correct of Patent and Trademark Office mistake. Therefore no fee is believed due for this Certificate of Correction. However, if any fee is due Applicants authorize the Commissioner to charge any such fee, or to credit any overpayment to Applicants' Deposit Account No. 03-4060.

Respectfully submitted,

K. Hillman; Reg. No. 45,892

Customer No. 21773 Telephone: (858) 385-7185

Facsimile: (858) 385-6025

(Also Form PTO-1050)

# UNITED STATES PATENT AND TRADEMARK OFFICE CERTIFICATE OF CORRECTION

858 385 6025

PATENT NO.: 7,006,547

DATED

: February 28, 2006

INVENTOR(S): Thomas D. Steiger et al.

It is certified that an error appears or errors appear in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

On the face of the Patent, under (75) Inventors: please delete ", Edward P. Holtaway, Carlsbad, CA (US), Bryan Mossman, San Marcos, CA (US), Rajasekhar M. Rao, San Diego, CA (US)"

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PAGE 7/25\* RCVD AT 4/7/2006 5:33:12 PM [Eastern Daylight Time] \* SVR:USPTO-EFXRF-2/6 \* DNIS:2738300 \* CSID:858 385 6025 \* DURATION (mm-ss):07-00



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CERTIFICATE OF Applicant(s): Thomas D	TRANSMISSION BY FAC	SIMILE (37 CFR 1.8)	Docket No 2003-0129-01		
Application No 10/815,386	Filing Date March 31, 2004	Examiner Dung T. Nguyen	Group Art Unit 2828		
Invention: VERY HIGH REPETITION RATE NARROW BAND GAS DISCHARGE LASER SYSTEM Following are: Processing Fee under 37 CFR 1.17(i) Transmittal, in dupl. (2 pgs.); Response to Restriction Requirement (13 pgs.); 16 pgs. total, incl. cover					
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## PROCESSING FEE Under 37 CFR 1.17(i) TRANSMITTAL

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Application Number	10/815.386
Filing Date	March 31, 2004
First Named Inventor	Thomas D. Steiner
Art Unit	2828
Examiner Name	Dung T. Nguyen
Attorney Oocket Number	

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Application Number	10/815.386	
Filing Date	March 31, 2004	
First Named Inventor	Thomas D. Steiger	
Art Unit	2828	
Examiner Name	Dung T. Nguyen	
Attorney Docket Number		

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by § 1 63, except in provisional applications § 1.48 - for correcting inventorship, except in provisional appli § 1.52(d) - for processing a nonprovisional application filed w § 1.53(b)(3) - to convert a provisional application filed under ( § 1.55 - for entry of late priority papers § 1.71(g)(2) - to enter an amendment to the specification for § 1.99(e) - for processing a belated submission under § 1.99. § 1.103(b) - for requesting limited suspension of action, conti § 1.103(c) - for requesting limited suspension of settlen, reque § 1.103(d) - for requesting deferred examination of an application § 1.217 - for processing a redacted copy of a paper submitted the patent application publication § 1.221 - for requesting voluntary publication or republication § 1.291(c)(5) - for processing a second or subsequent protes	nventors after the filing date without an eath or declaration as prescribed lications.  It a specification in a language other than English § 1 53(c) into a nonprevisional application under § 1 53(b).  Purposes of 35 U.S.C. 103(c)(2) if not filed within the cited time periods nued prosecution application (§ 1 53(d)).  Post for continued examination (§ 1 114) ation d in the file of an application in which a redacted copy was submitted for of an application. Fee Codo 1803 to by the same real party in interest. S.C. 371(c)(4) naming an inventive entity different from the inventive ted after payment of the issue fee.			
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Matthew K. Hillman	45,892			
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..... (Name) Joy Day

(Signature)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

Thomas D. Steiger et al.

Serial No.: 10/815,386

Filing Date: March 31, 2004

Title: VERY HIGH REPETITION RATE

NARROW BAND GAS DISCHARGE

LASER SYSTEM

Examiner: Dung T. Nguyen

Group Art Unit: 2828

Conf. No.: 7573

Mail Stop Amendment Commissioner for Patents P.O. Box 1450 Alexandria, VA 22313-1450

## RESPONSE TO RESTRICTION REQUIREMENT

In response to the Office Action dated July 6, 2005 having a shortened statutory period for response set to expire on August 6, 2005, please amend the above-captioned patent application as follows:

Amendments to the Claims are reflected in the listing of claims which begins on page 2 of this paper.

Remarks begin on page 13 of this paper.



Docket No. 2003-0129-01 USSN 10/815,386

#### Amendments to the Claims:

The listing of claims will replace all prior versions, and listings, of claims in the application:

## Listing of Claims:

1. (original) A very high repetition rate gas discharge laser system in a MOPA configuration comprising:

a master oscillator gas discharge layer system producing a beam of oscillator laser output light pulses at a very high pulse repetition rate;

at least two power amplification gas discharge laser systems receiving laser output light pulses from the master oscillator gas discharge laser system and each of the at least two power amplification gas discharge laser systems amplifying some of the received laser output light pulses at a pulse repetition that is a fraction of the very high pulse repetition rate equal to one over the number of the at least two power amplification gas discharge laser systems to form an amplified output laser light pulse beam at the very high pulse repetition rate.

2. (original) The apparatus of claim 1 further comprising:

the at least two power amplification gas discharge laser systems comprises two power amplification gas discharge laser systems.

3. (original) The apparatus of claim 1 further comprising:

the at least two power amplification gas discharge lasers systems are positioned in series with respect to the oscillator laser output light pulse beam.

4. (original) The apparatus of claim 2 further comprising:

the at least two power amplification gas discharge lasers systems are positioned in series with respect to the oscillator laser output light pulse beam.

5. (original) The apparatus of claim 3 further comprising:

the master oscillator gas discharge laser system fires at a pulse repetition rate of  $x \ge 4000$ Hz;

each power amplification gas discharge laser fires and ½ x.

6. (original) The apparatus of claim 4 further comprising:



the master oscillator gas discharge laser system fires at a pulse repetition rate of  $x \ge 4000$  Hz; each power amplification gas discharge laser fires and  $\frac{1}{2}x$ .

- 7. (original) The apparatus of claim 3 further comprising:
   the master oscillator gas discharge laser system fires at a pulse repetition rate of x ≥ 5000 Hz;
   each power amplification gas discharge laser fires and ½ x.
- 8. (original) The apparatus of claim 4 further comprising:
  the master oscillator gas discharge laser system fires at a pulse repetition rate of x ≥ 5000 Hz;
  each power amplification gas discharge laser fires and ½ x.
- 9. (original) The apparatus of claim 5 further comprising: a beam delivery unit connected to the laser light output of the power amplification laser system and directing to output of the power amplification laser system to an input of a light utilization tool and providing at least beam pointing and direction control.
- 10. (original) The apparatus of claim 6 further comprising:

  a beam delivery unit connected to the laser light output of the power amplification laser system and directing to output of the power amplification laser system to an input of a light utilization tool and providing at least beam pointing and direction control.
- 11. (original) The apparatus of claim 7 further comprising:

  a beam delivery unit connected to the laser light output of the power amplification laser system and directing to output of the power amplification laser system to an input of a light utilization tool and providing at least beam pointing and direction control.
- a beam delivery unit connected to the laser light output of the power amplification laser system and directing to output of the power amplification laser system to an input of a light utilization tool and providing at least beam pointing and direction control.

12. (original) The apparatus of claim 8 further comprising:



Docket No. 2003-0129-01 USSN 10/815,386

## 13. (original) A lithography tool comprising:

a very high repetition rate gas discharge laser system in a MOPA configuration comprising:

a master oscillator gas discharge layer system producing a beam of oscillator laser output light pulses at a very high pulse repetition rate;

at least two power amplification gas discharge laser systems receiving laser output light pulses from the master oscillator gas discharge laser system and each of the at least two power amplification gas discharge laser systems amplifying some of the received laser output light pulses at a pulse repetition that is a fraction of the very high pulse repetition rate, equal to one over the number of the at least two power amplification gas discharge laser systems, to form an amplified output laser light pulse beam at the very high pulse repetition rate.

## 14. (original) The apparatus of claim 13 further comprising:

the at least two power amplification gas discharge laser systems is two power amplification gas discharge laser systems.

## 15. (original) The apparatus of claim 13 further comprising:

the at least two power amplification gas discharge lasers systems are positioned in series with respect to the oscillator laser output light pulse beam.

### 16. (original) The apparatus of claim 14 further comprising:

the at least two power amplification gas discharge lasers systems are positioned in series with respect to the oscillator laser output light pulse beam.

17. (original) The apparatus of claim 15 further comprising:

the master oscillator gas discharge laser system fires at a pulse repetition rate of  $x \ge 4000$  Hz;

each power amplification gas discharge laser fires and ½ x.

18. (original) The apparatus of claim 16 further comprising:

the master oscillator gas discharge laser system fires at a pulse repetition rate of  $x \ge 4000$  Hz;



each power amplification gas discharge laser fires and ½ x.

- 19. (original) The apparatus of claim 15 further comprising:
  the master oscillator gas discharge laser system fires at a pulse repetition rate of x ≥ 5000 Hz;
  each power amplification gas discharge laser fires and ½ x.
- 20. (original) The apparatus of claim 16 further comprising:
   the master oscillator gas discharge laser system fires at a pulse repetition rate of x ≥ 5000 Hz;
   each power amplification gas discharge laser fires and ½ x.
- 21. (original) The apparatus of claim 15 further comprising:
  a beam delivery unit connected to the laser light output of the power amplification laser system and directing to output of the power amplification laser system to an input of a light utilization tool and providing at least beam pointing and direction control.
- 22. (original) The apparatus of claim16 further comprising: a beam delivery unit connected to the laser light output of the power amplification laser system and directing to output of the power amplification laser system to an input of a light utilization tool and providing at least beam pointing and direction control.
- 23. (original) The apparatus of claim 17 further comprising:
  a beam delivery unit connected to the laser light output of the power amplification laser system and directing to output of the power amplification laser system to an input of a light utilization tool and providing at least beam pointing and direction control.
- 24. (original) The apparatus of claim18 further comprising:
  a beam delivery unit connected to the laser light output of the power amplification laser system and directing to output of the power amplification laser system to an input of a light utilization tool and providing at least beam pointing and direction control.
  - 25. (previously presented) A laser produced plasma EUV light source comprising:

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a very high repetition rate gas discharge laser system in a MOPA configuration comprising:

a master oscillator gas discharge layer system producing a beam of oscillator laser output light pulses at a very high pulse repetition rate;

at least two power amplification gas discharge laser systems receiving laser output light pulses from the master oscillator gas discharge laser system and each of the at least two power amplification gas discharge laser systems amplifying some of the received laser output light pulses at a pulse repetition that is a fraction of the very high pulse repetition rate, equal to one over the number of the at least two power amplification gas discharge laser systems, to form an amplified output laser light pulse beam at the very high pulse repetition rate.

- 26. (previously presented) The apparatus of claim 25 further comprising: the at least two power amplification gas discharge laser systems is two power amplification gas discharge laser systems.
- 27. (previously presented) The apparatus of claim 25 further comprising:
  the at least two power amplification gas discharge lasers systems are positioned in series
  with respect to the oscillator laser output light pulse beam.
- 28. (previously presented) The apparatus of claim 26 further comprising:
  the at least two power amplification gas discharge lasers systems are positioned in series with respect to the oscillator laser output light pulse beam.
- 29. (previously presented) The apparatus of claim 27 further comprising:
  the master oscillator gas discharge laser system fires at a pulse repetition rate of x > 4000
  Hz;
  each power amplification gas discharge laser fires and ½ x.
- 30. (previously presented) The apparatus of claim 28 further comprising:
   the master oscillator gas discharge laser system fires at a pulse repetition rate of x ≥ 4000
   H2;
   each power amplification gas discharge laser fires and ½ x.



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31. (previously presented) The apparatus of claim 27 further comprising:
the master oscillator gas discharge laser system fires at a pulse repetition rate of x ≥ 5000 Hz;
each power amplification gas discharge laser fires and ½ x.

32. (previously presented) The apparatus of claim 28 further comprising:
 the master oscillator gas discharge laser system fires at a pulse repetition rate of x ≥ 5000 Hz;
 each power amplification gas discharge laser fires and ½ x.

33. (previously presented) The apparatus of claim 29 further comprising: a beam delivery unit connected to the laser light output of the power amplification laser

system and directing to output of the power amplification laser system to an input of a light utilization tool and providing at least beam pointing and direction centrol.

- 34. (previously presented) The apparatus of claim 30 further comprising:
  a beam delivery unit connected to the laser light output of the power amplification laser system and directing to output of the power amplification laser system to an input of a light utilization tool and providing at least beam pointing and direction control.
- 35. (previously presented) The apparatus of claim 31 further comprising:
  a beam delivery unit connected to the laser light output of the power amplification laser system and directing to output of the power amplification laser system to an input of a light utilization tool and providing at least beam pointing and direction control.
- 36. (previously presented) The apparatus of claim 32 further comprising:
  a beam delivery unit connected to the laser light output of the power amplification laser system and directing to output of the power amplification laser system to an input of a light utilization tool and providing at least beam pointing and direction control.

37.-102. (canceled)



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103. (previously presented) A method of producing a very high repetition rate gas discharge laser system in a MOPA configuration comprising:

utilizing a master oscillator gas discharge layer system, producing a beam of oscillator laser output light pulses at a very high pulse repetition rate;

utilizing at least two power amplification gas discharge laser systems, receiving laser output light pulses from the master oscillator gas discharge laser system and, in each of the at least two power amplification gas discharge laser systems, amplifying some of the received laser output light pulses at a pulse repetition that is a fraction of the very high pulse repetition rate equal to one over the number of the at least two power amplification gas discharge laser systems to form an amplified output laser light pulse beam at the very high pulse repetition rate.

104. (previously presented) The method of claim 103 further comprising:
the at least two power amplification gas discharge laser systems comprises two power amplification gas discharge laser systems.

105. (previously presented) The method of claim 103 further comprising:
the at least two power amplification gas discharge lasers systems are positioned in series
with respect to the oscillator laser output light pulse beam.

106. (previously presented) The method of claim 104 further comprising:
the at least two power amplification gas discharge lasers systems are positioned in series with respect to the oscillator laser output light pulse beam.

107. (previously presented) The method of claim 103 further comprising:
utilizing a beam delivery unit connected to the laser light output of the power
amplification laser system, directing to output of the power amplification laser system to an input
of a light utilization tool and providing at least beam pointing and direction control.

108. (previously presented) The method of claim 104 further comprising:
utilizing a beam delivery unit connected to the laser light output of the power
amplification laser system, directing to output of the power amplification laser system to an input
of a light utilization tool and providing at least beam pointing and direction control.



109. ((previously presented) ) The method of claim 105 further comprising: utilizing a beam delivery unit connected to the laser light output of the power amplification laser system, directing to output of the power amplification laser system to an input of a light utilization tool and providing at least beam pointing and direction control.

110. (previously presented) The method of claim 106 further comprising:
utilizing a beam delivery unit connected to the laser light output of the power
amplification laser system, directing to output of the power amplification laser system to an input
of a light utilization tool and providing at least beam pointing and direction control.

111. (currently amended) A method of performing integrated circuit lithography comprising:

utilizing a method mechanism for producing a very high repetition rate gas discharge laser system in a MOPA configuration comprising the steps of:

utilizing a master oscillator gas discharge layer system, producing a beam of oscillator laser output light pulses at a very high pulse repetition rate;

utilizing at least two power amplification gas discharge laser systems, receiving laser output light pulses from the master oscillator gas discharge laser system and, in each of the at least two power amplification gas discharge laser systems, amplifying some of the received laser output light pulses at a pulse repetition that is a fraction of the very high pulse repetition rate equal to one over the number of the at least two power amplification gas discharge laser systems to form an amplified output laser light pulse beam at the very high pulse repetition rate.

- 112. (previously presented) The method of claim 111 further comprising:
  the at least two power amplification gas discharge laser systems comprises two power amplification gas discharge laser systems.
- 113. (previously presented) The method of claim 111 further comprising:
  the at least two power amplification gas discharge lasers systems are positioned in series
  with respect to the oscillator laser output light pulse beam.
  - 114. (previously presented) The method of claim 112 further comprising:



the at least two power amplification gas discharge lasers systems are positioned in series with respect to the oscillator laser output light pulse beam.

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115. (previously presented) The method of claim 111 further comprising:
utilizing a beam delivery unit connected to the laser light output of the power
amplification laser system, directing to output of the power amplification laser system to an input
of a light utilization tool and providing at least beam pointing and direction control.

116. (previously presented) The method of claim 112 further comprising:
utilizing a beam delivery unit connected to the laser light output of the power
amplification laser system, directing to output of the power amplification laser system to an input
of a light utilization tool and providing at least beam pointing and direction control.

117. (previously presented) The method of claim 113 further comprising:
utilizing a beam delivery unit connected to the laser light output of the power
amplification laser system, directing to output of the power amplification laser system to an input
of a light utilization tool and providing at least beam pointing and direction control.

118. (previously presented) The method of claim 114 further comprising:
utilizing a beam delivery unit connected to the laser light output of the power
amplification laser system, directing to output of the power amplification laser system to an input
of a light utilization tool and providing at least beam pointing and direction control.

119. (previously presented) A method of producing EUV light utilizing a laser produced plasma comprising:

utilizing a very high repetition rate gas discharge laser system in a MOPA configuration comprising:

utilizing a master oscillator gas discharge layer system, producing a beam of oscillator laser output light pulses at a very high pulse repetition rate;

utilizing at least two power amplification gas discharge laser systems, receiving laser output light pulses from the master oscillator gas discharge laser system and, in each of the at least two power amplification gas discharge laser systems, amplifying some of the received laser output light pulses at a pulse repetition that is a fraction of the very high pulse repetition rate



equal to one over the number of the at least two power amplification gas discharge laser systems to form an amplified output laser light pulse beam at the very high pulse repetition rate.

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- 120. (previously presented) The method of claim 119 further comprising: the at least two power amplification gas discharge laser systems comprises two power amplification gas discharge laser systems.
- 121. (previously presented) The method of claim 120 further comprising:
  the at least two power amplification gas discharge lasers systems are positioned in series
  with respect to the oscillator laser output light pulse beam.
- 122. (previously presented) The apparatus of claim 121 further comprising:
  the at least two power amplification gas discharge lasers systems are positioned in series
  with respect to the oscillator laser output light pulse beam.
- 123. (previously presented) The method of claim 119 further comprising:
  utilizing a beam delivery unit connected to the laser light output of the power
  amplification laser system, directing to output of the power amplification laser system to an input
  of a light utilization tool and providing at least beam pointing and direction control.
- 124. (previously presented) The method of claim 120 further comprising:
  utilizing a beam delivery unit connected to the laser light output of the power
  amplification laser system, directing to output of the power amplification laser system to an input
  of a light utilization tool and providing at least beam pointing and direction control.
- 125. (previously presented) The method of claim 121 further comprising:
  utilizing a beam delivery unit connected to the laser light output of the power
  amplification laser system, directing to output of the power amplification laser system to an input
  of a light utilization tool and providing at least beam pointing and direction control.
  - 126. (previously presented) The method of claim 122 further comprising:



utilizing a beam delivery unit connected to the laser light output of the power amplification laser system, directing to output of the power amplification laser system to an input of a light utilization tool and providing at least beam pointing and direction control.

127,-138 (canceled)



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### Remarks

In the Office Action, the Examiner has imposed a restriction requirement between Group I drawn to a very high repetition rate gas discharge laser system ... comprising a master oscillator and at least two power amplification systems classified in Class 372, subclass 30 (claims 1-36 and 103-126), Group II drawn to a very high repetition rate gas discharge laser system ... comprising a first and second line narrowed laser systems and a combiner classified in Class 372, subclass 25 (claims 37-54 and 127-129) and Group III drawn to a very high repetition rate gas discharge laser system ... comprising a compression head, gas discharge chamber and at least two magnetically saturated switches classified in Class 372, subclass 38.02 (claims 55-102 and 130-138).

In this response, Applicants hereby elect to prosecute the invention of Group I, (claims 1-36 and 103-126), without traverse, for prosecution on the merits. Accordingly, claims 37-102 and 127-138 are hereby cancelled without prejudice or disclaimer of subject matter. In addition, claims 111 has been amended to correct an obvious typographical error.

Due to the cancellation of claims 37-102 and 127-138, Attorney for Applicants hereby requests correction of inventorship under 37CFR1.48(b) to delete the following inventors from the above captioned application:

Edward P. Holtaway

Bryan Moosman

Rajasekhar M. Rao

The processing fee set forth in 370, 91.17(i) is enclosed herewith.

In conclusion, Applicants respectfully assert that claims 1-36 and 103-126 are patentable for the reasons set forth above, and that the application is now in a condition for allowance. Accordingly, an early notice of allowance is respectfully requested. The Examiner is requested to call the undersigned at (858) 385-5298 for any reason that would advance the instant application to issue.

Respectfully submitted,

Matthiw K. Hillman, Reg. No. 45,892

July 20, 2005 Cymer, Inc. Customer No. 21773 APR-07-2006 13:34 From:

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\* \* \* TRANS) SION RESULT REPORT ( JUL. 21, 2005 . :08AM ) \* \*

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